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ABSTRACT

As is the case with other worksite wellness programs, company-sponsored nutrition programs have been expanding both in numbers and in depth. Besides offering a convenient health-enhancing benefit to employees, worksite nutrition programs benefit business by preventing several costly nutrition-related health problems, enhancing employees' overall sense of well-being, and ultimately increasing employee productivity. The workplace offers several advantages as a site for nutrition education. It offers the potential to harness social support and social influence from coworkers and management, the availability of a daily eating situation, and opportunities for follow-up and reinforcement. Depending on the individual company and its needs, company nutrition programs can focus on any one or a combination of several or all of the following: cafeteria or point-of-purchase nutrition education, weight control, cholesterol reduction, programs for pregnant or lactating women, and nutrition education activities. Although evaluation data from worksite nutrition programs still remain limited, a number of studies have confirmed the effectiveness of company-sponsored nutrition programs in helping employees lose weight, reduce their cholesterol, and improve their eating habits at work. (Fourteen examples of companies that offer worksite nutrition education programs are included in this document.) (MN)

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WBGH WORKSITE WELLNESS SERIES

NUTRITION PROGRAMS IN THE WORKPLACE

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Washington Business Group on Health
Washington, D.C.

WBGH Worksite Wellness Series

NUTRITION PROGRAMS IN THE WORKPLACE

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NUTRITION PROGRAMS IN THE WORKPLACE

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NUTRITION PROGRAMS IN THE WORKPLACE

WHY IS NUTRITION IMPORTANT?

The relationship between certain dietary habits and six of the ten leading causes of death has been clearly established.[71] Nutrition plays a key role in

- o heart disease,
- o some cancers,
- o stroke,
- o arteriosclerosis,
- o diabetes, and
- o cirrhosis of the liver.

Nutrition is important in both primary prevention of these and other diseases, and in reducing the risk factors that cause or complicate chronic illnesses (e.g., diabetes and kidney disease). Known nutritional risk factors for chronic conditions include obesity, elevated blood cholesterol, and overconsumption of sugar, salt, fats, and highly refined foods.[38,73] For example, obesity increases the risk of cardiovascular disease, especially in combination with hypertension, elevated blood cholesterol, and diabetes.

In addition:

- o As much as 35 percent of all cancers are linked to nutrition according to the National Cancer Institute.
- o Poor nutrition in pregnant women is a contributing factor in low birthweight babies, a leading cause of death among infants.

- An estimated one-third of the American population today is obese to the extent of decreasing their life expectancy.[72]

Improvements in eating habits have been shown to reduce the risk of serious health problems.

- In at-risk individuals, weight loss has been found effective in reducing both blood pressure[57] and cholesterol levels.[25]
- Weight control and diet regulation are central to the control of non-insulin-dependent diabetes, and can prevent secondary symptoms and complications.
- Low-fat eating patterns can reduce high blood cholesterol levels and decrease the chances of a heart attack.
- Also, dietary management can reduce the need for long-term medication use for treatment of hypertension in some patients.[33,43]

WHY IS NUTRITION IMPORTANT TO BUSINESSES?

Along with other worksite wellness activities, nutrition programs have expanded in both numbers and depth.

Through workplace nutrition programs, employers are providing a convenient, health-enhancing benefit to their employees, while also bringing benefits to the company.

- An estimated 16.7 million workers are more than 20 percent above their desired weight.[50] For these obese workers, weight loss may significantly improve physical health, and also have secondary benefits such as higher productivity and improved morale.
- Employees suffering from back pain due to excess weight can not only feel and look better after losing weight, but can reduce their likelihood of being absent and their risk of injury and disability, as well.
- Cholesterol reduction may be achieved within one or two months of starting a focused nutrition program, and one seven-year study on high-risk men (Lipid Research Clinics Coronary Primary Prevention Trials) shows that each one percent reduction in high blood cholesterol yields an estimated two percent reduction in the risk of a heart attack. Thus health care expenditures, disability payments, and the costs of retraining may be reduced through an effective cholesterol education program.
- Diabetic workers average twice as many lost work days per year and have 2.3 times as many hospitalizations as non-diabetics of the same age.[81] Encouraging good diet control through a workplace program may reduce absenteeism and health care costs.

In addition to these benefits, which can occur in the early stages of a workplace nutrition program, several costly health problems can be potentially avoided in the long run with improved

nutrition. Coronary heart disease and certain cancers are the most important examples of highly prevalent diseases that many experts agree can be reduced through good nutritional practices.

The workplace, itself, offers several advantages as a site for nutrition education. It offers:

- o The potential to harness social support and social influence from among coworkers and management;
- o The availability of a daily eating situation, sometimes providing an employee's most complete meal of the day; and,
- o Opportunities for follow-up, monitoring, and reinforcement.

STATUS OF WORKSITE NUTRITION PROGRAMS

Although there are no national statistics available on the number or prevalence of worksite nutrition programs, there is evidence that some aspect of nutrition is addressed in many worksite programs.

- Almost all of the comprehensive worksite programs discussed in two collections of program descriptions report that they include one or more nutrition offerings.[17,52]
- In a recent survey of the Association for Fitness in Business' members in the northeast, all 64 programs that responded had at least one nutrition activity.[48]
- In three surveys examining the frequency of topical health promotion offerings, nutrition has been ranked sixth or seventh, usually behind CPR and first aid, substance abuse, hypertension control, physical fitness, stress management, and smoking cessation.[14,23,37]

It also should be recognized that many occupational nutrition programs are relatively new; surveys of worksite health programs in Colorado and California indicate that most nutrition education and weight control programs in worksites are less than four or five years old.[18,23]

The likelihood of offering any worksite health promotion program appears to be related to two factors, company size and costs. Results from several surveys indicate that larger companies have more nutrition programs than small or medium-sized companies. Program costs also are often cited by management as a key factor in determining whether or not to provide a specific wellness activity such as nutrition. While nutrition education at the worksite can be provided using the less expensive and more commonly available education media - print materials such as newsletters, handouts, and posters - the more expensive educational methods such as seminars, courses, or counseling

probably produce much better results. Thus, costs may be a deterrent to some companies' offering these activities.

As the number of worksite health promotion programs increases, it is probable that nutrition programs also will continue to expand. The availability of materials and strategies with demonstrated success will add to this growth by reducing the costs of program development.

REVIEW OF WORKSITE NUTRITION PROGRAMS AND OUTCOMES

Worksite nutrition programs can be examined in six broad classifications.

- o cafeteria programs designed to influence worksite eating habits;
- o multi-component nutrition programs;
- o programs focusing on weight control;
- o programs focusing on cholesterol reduction;
- o programs focusing on pregnant and lactating women; and
- o other nutrition education topics.

These programs include both direct influence and environmental or structural interventions.

- o Direct influence strategies involve provision of information, verbal persuasion, and behavior change techniques directly to individuals or groups of employees. Direct influence strategies include such activities as weight-loss classes, distribution of print materials such as recipes, and the establishment of support groups.
- o In contrast, environmental or structural interventions are strategies that may influence knowledge, awareness, and behavior by increasing opportunities to act or by reducing barriers for learning or behavior change. They focus on health improvement by changing the environment first, without requiring individual voluntary participation in educational activities. Examples include changing the food available in the dining room, establishing company policies supporting program participation such as offering classes on company time, putting scales in restrooms, offering point-of-purchase nutrition information such as identifying low-salt foods, and so on. Direct influence and environmental strategies often coexist.

Planning for worksite nutrition programs involves a complex process of tailoring interventions to the health needs of employees (e.g., overweight, high cholesterol), their health behavior change needs (e.g., unhealthy eating habits, excess fat in diet), and their demands, as well as to the available resources, both within and outside the company. Formal and informal needs assessments will help point to the types of health education methods, strategies, and programs that will be most beneficial.

Cafeteria and Point of Purchase Programs

Cafeteria interventions and point of purchase nutrition information (that is, information in the cafeteria or on vending machines where food is purchased) are the most common types of environmental or structural interventions in worksite nutrition programs. These programs increase opportunities to learn and make healthy food choices, and reduce barriers to behavior change. They impose minimal burdens on the time and effort of workers and can reach large audiences on a continual basis.

These techniques may include:

- o modifying menu choices to include low fat, low calorie, low sugar, high fiber foods;
- o highlighting "heart healthy" or other types of nutritious foods;
- o providing information handouts about nutrition;
- o using games and contests that provide nutrition information;
- o encouraging purchase of nutritious foods through special pricing policies;
- o changing cafeteria layout to highlight a salad bar, skim milk and decaffeinated coffee or other nutritious items;
- o training cafeteria staff about heart-healthy food and nutritious food preparation;
- o negotiating with food service vendors for special healthy menus and food options.

Most comprehensive worksite health promotion programs with nutrition components use one or more of these techniques, which take advantage of the workplace eating situation.

Three worksite point of purchase programs for which evaluation data are available found encouraging results.

- In the National Heart, Lung, and Blood Institute's employee cafeteria, a "Food for Thought" nutrition card game yielded increases in skim milk purchases, decreases in dessert and bread choices, and a significant decrease in average calories purchased per person per day.[80]
- A pre-test, post-test evaluation assessed the impact of information cards comparing the caloric, sodium, and fat content of similar foods in a Mattel company cafeteria. There were significant reductions in the amount of calories and sodium per tray, and a trend toward fewer grams of fat per tray.[63]
- Boeing's Rainbow Nutrition program identified recommended cafeteria food choices (i.e., foods adhering to the U.S. Dietary Guidelines) with rainbow tags and calorie information. Cash register tapes showed that each day nearly 12 percent of the 35,000 employees who used company dining facilities chose Rainbow foods.[4] Considering the fact that employees have a high number of options from which to choose, 12 percent represents a relatively large group choosing any one item.

Cafeteria programs can reach many employees with relatively small expense, and can stand alone or go with other nutrition programs.

Point of purchase information has been found to be more effective when it is one of several communication and education strategies. The "Company Examples" section of this report includes additional examples of cafeteria and point of purchase programs.

Multi-Component Programs

Many large companies have multi-component nutrition programs, often as part of a larger comprehensive wellness effort. Multi-component worksite nutrition programs with screening, intervention, and follow-up are considered models for workplace wellness efforts designed to change behavior and improve health status.

- o Campbell Soup Company began its Atherosclerosis Prevention Program in 1968. About 35 percent of the employees who completed a medical screening at that time were found to have elevated serum lipids (blood fats or cholesterol). They were advised to follow a prudent diet, and about 50 percent were still following the diet one year later.[16] Campbell's program described dietary counseling for reduction of weight, lipids, and hypertension. This counseling includes food records, handouts, weekly consultation, and monitoring. Weight-loss contests have been conducted to help employees lose weight, though the company medical director feels they lacked long-term effectiveness.[75]
- o At Kimberly-Clark, employee health promotion has been a tool for improving health, recruiting employees, and enhancing the company image. Occupational nurses refer employees to the program, which is also available to spouses and retirees. Kimberly-Clark offers several nutrition courses, with both information and behavior modification emphases. Individual and group nutrition counseling are available.[20] Because it is an ongoing program, it uses a cycle of assessment, prescription, education, evaluation, and follow-up. Extensive formative evaluation of the weight-loss program has spurred frequent innovations, and nutrition education has been expanded to include changes in the cafeteria, such as offering low-salt foods.[67]
- o Johnson & Johnson conducts an ongoing program called Live for Life. Key elements include use of volunteer leaders, a health screen, a lifestyle seminar to introduce the program, lifestyle improvement programs, and strategies to sustain

participation.[76] Among the core "action programs" J&J offers are a 10-session weight control program and an eight-session nutrition program emphasizing prudent eating patterns. As part of the emphasis on creating a healthful environment, there are scales in the restrooms, nutritious foods available in cafeterias and vending machines, and nutrition information available where food is sold. Comprehensive program evaluation includes a participation tracking system, and preliminary findings from an experimental epidemiological evaluation show a significant reduction in the number of overweight employees at program sites.[78]

- Southern New England Telephone offers a varied program entitled "Reach Out for Health." After screening and individual health counseling, employees may enroll in several nutrition courses: an eight-week behavior modification weight control program, a six-week Nutrition Awareness course, and short courses such as "Nutrition Potpourri," "Pressure Cooker," and "Nutrition Nonsense." The cafeteria program includes point of purchase nutrition information and informational flyers. Preliminary evaluation data show reductions in weight, cholesterol, triglycerides, and blood pressure.[13]
- The Rodale Press program emphasizes environmental strategies and "strong company support for healthful living." The company's product line is health-oriented, including several magazines that address health and/or nutrition. Fresh, low fat, low salt, whole grain foods are served in the four company cafeterias; there are extensive health information resources internally; and Rodale's Food Research Center develops tasty healthy foods for its employees, as well as its consumers.[60]

The "Company Examples" section of this report includes additional details about these programs, as well as several more descriptions of multi-component programs.

Weight Control Programs

The literature on weight reduction programs is extensive and has been well reviewed recently.[9,68] Currently, behavior modification techniques predominate among strategies for weight control, and they have been called by far the most effective of all nonsurgical treatments for weight loss.[70] Behavior modification techniques focus on changing behaviors by modifying thoughts and feelings ("food makes me happy," "eating makes my depression go away") and/or environmental or situational factors that serve as cues to a specific behavior (such as eating while watching television or while preparing food). Reinforcers, such as keeping food diaries or weight-loss charts, are used to sustain change.

Basic components of behavior modification approaches are (a) self-monitoring and analysis of behavior, such as keeping a diary of what is eaten, when, with whom, etc., (b) stimulus control or restricting external cues that set the occasion for overeating or remaining sedentary, such as eating while watching television or cooking or putting down the fork between bites, and (c) reinforcement of altered behavior, for example, buying a new item of clothing when an interim goal has been met.[31]

Since 1978, many reports of worksite weight control programs have been published, and all use behavior modification techniques, often in combination with information, motivation, and innovative organizational strategies, such as competitions. Twenty-three program reports were reviewed for this paper, though the amount of information varies greatly across the reports.

Following are some conclusions and observations about worksite weight-control programs based on reports in the literature.

- Where reported, average weight losses were between five and eighteen pounds, with longer programs (ten weeks or more) usually achieving larger losses. (However, it is misleading to draw conclusions based on absolute weight loss figures, which are affected by the amount of initial overweight and other factors.)
- Of the 12 programs reporting attrition rates, most found that 40 to 70 percent of enrollees completed the initial programs, and 40 to 60 percent of the completers returned for follow-up sessions.
- Because worksite weight loss programs suffer major attrition problems, providers have sought ways to reduce drop-out rates. Some strategies that have been successful include: personal phone reminders,[11] "frequent class meetings,[12,69] monetary incentives for attendance,[26] the use of lay leaders,[69] competitions with a minimal number of instructional sessions,[11,69] and compulsory participation (a military program).[58] The application of these strategies in any given setting will depend on the program structure and management policy.
- It appears that weight loss competitions are especially appealing to and effective for men,[65] and that they can result in better than average weight losses and lower attrition rates.[10,65] Though it is too early to conclude that competitions are an ideal worksite program mode,[75] they appear both inexpensive and effective in a variety of formats. At Lockheed Corporation, almost 2,500 people took part in a three-month competition that used behavior modification modules. Rather than offer weekly contacts, the program encouraged team members to organize their own activities, thus stressing self responsibility.[65]
- Minimal contact or self-help techniques can reduce program cost. If well designed with accompanying instructional materials, they may achieve as much success as professionally led, high-contact programs.[11,55] A unique approach to minimal professional contact weight management

is the "correspondence course," which can reach audiences who cannot or will not attend group sessions, such as sales personnel or executives. At one Johnson & Johnson company, a 12-week course with weekly phone or mail feedback and only two in-person weigh-ins proved feasible and as effective as group programs at the same company.[77]

- Programs ranged from five to sixteen weeks in length, with follow-up periods of up to one year.
- Some weight management programs at the workplace have incorporated social influence strategies to take advantage of the work environment. These have included urging employees to demonstrate a "public commitment" to losing weight by wearing brightly colored buttons, posting individuals' weight losses, and by participating in inter-group and inter-company competitions or contests.[1,2,10,64,65,75]
- While professional leaders (dietitions, nurses, clinical psychologists, health educators, physicians) are used most frequently, trained lay volunteers also have led these programs with success comparable to that of professionals, and at a lower cost.[11,55]
- Weight control programs for employees have been conducted at business offices,[10,15] industrial firms,[2,10,41,54,65] hospitals,[1,64] police departments,[39] military bases,[58] department stores,[11] and many other types of work settings.
- While many companies conduct their own programs and develop their own written materials, others contract with commercial providers to conduct weight control programs. One example of a successful commercial provider is the Weight Watchers at Work Program, which enrolled more than 50,000 members in the U.S., Canada, Puerto Rico, and Great Britain[29] in its first year of operation.

The "Company Examples" section of this report includes several descriptions of worksite weight control programs, including Control Data Corporation, Johnson & Johnson, Wyomissing Corporation, John Hancock Mutual Life Insurance Company, and Rodale Press, Inc.

Cholesterol Reduction Programs

Nutrition programs to reduce the risk of cardiovascular diseases have focused on weight control, and cholesterol reduction, and infrequently on blood pressure management. Since weight control programs have been examined in the previous section, and since few high blood pressure programs address nutrition as a major component, this section will review worksite nutrition programs to reduce cholesterol.

Accumulated scientific evidence from laboratory, epidemiological, and clinical studies has shown that an elevated blood cholesterol level is an important risk factor for coronary heart disease, and that blood cholesterol levels can be lowered safely by both diet and drugs. Thus, the National Heart, Lung, and Blood Institute (NHLBI) is coordinating a national educational effort, the National Cholesterol Education Program (NCEP), to reduce coronary heart disease morbidity and mortality related to elevated blood cholesterol. NCEP views the workplace as a major focus for cooperative efforts in research and education for employees, their families, occupational health professionals, unions, and management.

Following are examples of several cholesterol reduction programs at worksites and the results they achieved.

- In a worksite screening for Social Security Administration employees, a 24-week lipid (blood fats or cholesterol) clinic staffed by a nutritionist and physician was compared with a no-treatment control group. The lipid clinic included group instruction and discussion, individual

counseling, and the wives of married male participants were invited to attend group sessions. Both clinic and physician referral groups achieved 12 to 17 percent cholesterol reductions, significantly greater than the four percent drop in the control group.[47] However, the benefits of treatment disappeared over time, after the program was discontinued.[79]

- At New York Telephone Company, an eight-week small group program with six monthly maintenance meetings offered a multiple treatment approach including eating behavior change techniques, nutrition information, physical activity planning, and self-management skills using behavior modification principles. Compared with a control group that met only for data collection, the experimental subjects showed significant improvements in knowledge, weight loss, and cholesterol reductions (8.8 percent versus 2.4 percent). Continuous participation rates of 81 percent were achieved in the experimental group, and this was considered another indicator of program success.[12]
- A recent cholesterol education program at L. L. Bean, Inc., Freeport, ME, resulted in a 14 percent average cholesterol reduction in participating employees.[56]
- The Heart Disease Prevention Project was a randomized controlled trial among employed men in Great Britain, and cholesterol reduction was a key component. The interventions included combinations of written dietary advice, personal contact from a physician four times a year, and individual counseling by a nurse.[62] Cholesterol reductions were greater with personal interaction than with just mailed communications (letter and leaflet) including the same advice.[36]

Based on these and other studies, it seems that worksite screening, nutrition information, behavior modification techniques, group support, maintaining periodic contact, encouraging self-monitoring, and providing feedback about

adherence are all promising approaches to nutrition education, including cholesterol reduction, deserving further application and study in the workplace.[31]

The model worksite hypertension control programs--with screening, referral to physicians, and monitoring and follow-up at the workplace--also may be adaptable for cholesterol reduction. However, several differences between hypertension management and diet modification may impede the adaptation of proven worksite blood pressure control strategies for nutrition education.[35] For example, unlike hypertension screening, techniques for screening high cholesterol involve drawing blood, and some employees may object to this. Also, physicians have not agreed widely on the cholesterol levels that require treatment by diet and/or drugs, nor on the best approaches to treatment. Last, and very important, dietary change is the main approach to cholesterol reduction, while blood pressure usually can be controlled with medication. Lifestyle changes, such as diet restrictions, are harder to achieve than those of simply adding medication.

The "Company Examples" section of this report includes discussions of worksite cholesterol reduction programs, including L. L. Bean's program.

Programs for Pregnant and Lactating Women

Over half of all women in the U.S. are currently in the labor force, and 85 percent of all these women will become pregnant at some point during their working lives.[82] Companies are beginning to respond to this trend by addressing the important role of nutrition during pregnancy and breast feeding as part of their worksite health promotion programs. Prenatal nutrition is important for the health of mothers and their babies, and promotion of breast feeding is part of a nationwide effort to reduce prenatal death rates and infant mortality.

- The Franklin Life Insurance Company in Springfield, IL, offers its employees prenatal education that includes nutrition counseling. After eighteen months of the program, there was an average decrease of 4.5 days of absence per pregnant employee, and pregnant workers reported improved morale.
- Kimberly-Clark Corporation, Neenah, WI, includes nutrition during pregnancy and breast feeding among the offerings of its "Health Management Program."
- In 1981, a program to encourage breast feeding among employees was implemented at Hunterdon Medical Center in New Jersey. The availability of a breast pump, time for expression of breast milk during work, and refrigeration for breast milk helped ease the problems surrounding the return to work for lactating employees.
- As part of its "Good Business is Good Health" program, the March of Dimes offers a seminar on nutrition for women in the childbearing years. The seminar series, which uses audio-visual and print education materials, is sponsored by local March of Dimes chapters and is conducted by volunteer health professionals. The program has been conducted at Olin Corporation, Stamford, CT, and in other businesses around the country.[83]

Other Nutrition Education Topics and Activities

Although weight control and cholesterol reduction are the most common topics for worksite nutrition programs aimed at behavior change, the range of nutrition education offered for employees is as varied as the entire field of nutrition education. Programs to increase awareness, knowledge, and positive attitudes about healthful eating may serve as introductions to more in-depth programs[46] or stand alone in companies with limited time and resources for nutrition education.

Nutrition education about the U.S. Dietary Guidelines** has been provided alone and as a prelude to a weight control program.[17,66] Other activities have been used to promote awareness and understanding of healthy eating habits, including:

- Taste-testing demonstrations (with food modified in fat, cholesterol, sugar, sodium, and calories) to stimulate favorable attitudes toward foods consistent with the Dietary Guidelines (Fort Worth Fire Department);[6,34]
- Cooking classes featuring high-fiber, low-salt, low-sugar, and low-fat dishes (John Hancock Mutual Life Insurance Company*);
- Recipe contests for nutritious foods, including healthy lunch bag idea (Union Carbide Corporation*);
- Group and individual dietary counseling (Kimberly-Clark Corporation*);
- A nutrition question phone line, staffed by HMO health professionals (Kaiser Permanente Medical Care Program, Oregon Region);[19]
- Guides for choosing foods in restaurants (Rodale Press, Inc.*);
- Short "Trigger Talks" to stimulate interest in in-depth weight loss and nutrition classes (Southern New England Telephone*);
- Self-instruction or learn-at-home lessons (Johnson & Johnson*);[8,51]
- Scales available in restrooms or other areas for self-monitoring of weight (Johnson & Johnson*);
- Refrigerator and microwave available to encourage employees to bring healthy lunches and snacks from home (Washington Business Group on Health, Washington, D.C.);
- Worksite nutrition programs open to employees' families (Systems Development Corporation*);
- Computerized dietary analysis for employees, retirees, and families (Tacoma-Pierce Health Department*).

(* Companies listed with an asterisk [*] are discussed in greater

detail in the "Company Examples" of this report.)

(**The seven U.S. Dietary Guidelines ask individuals to: eat a variety of foods; maintain ideal weight; avoid too much fat, saturated fat and cholesterol; eat foods with adequate starch and fiber; avoid too much sugar; avoid too much sodium; and if alcohol is consumed, use it in moderation.)

These innovative approaches to nutrition education can open the door for other nutrition and health promotion programs. And, as suitable educational materials to accompany worksite programs like those mentioned here become available, we can expect nutrition education on a wide variety of topics to appear in more employee health programs.

EVALUATION OF WORKSITE NUTRITION PROGRAMS

While evaluation data for worksite nutrition programs still remains limited, programs have been effective in helping employees to lose weight,[1,11,29,65,etc.] to reduce cholesterol levels,[12,36] and to improve eating habits at work.[63,80] Many of these and other studies have been summarized in this paper's section, "Review of Worksite Nutrition Programs and Outcomes," under the headings "Cafeteria and Point of Purchase Programs," "Multi-Component Programs," "Weight Control Programs," Cholesterol Reduction Programs," "Programs for Pregnant and Lactating Women," and "Other Education Topics and Activities."

Among the findings of these evaluation reports are:

- o After eighteen months of prenatal education at Franklin Life Insurance Company, pregnant employees had an average decrease of 4.5 days of absence per year per employee, and they reported improved morale.
- o Use of a cafeteria nutrition card game at the National Heart, Lung, and Blood Institute brought about changes in employees' eating habits, including increased skim milk purchases, decreased dessert and bread choices, and a significant decrease in average calories purchased per person per day.[80]
- o A weight loss program at Control Data Corporation produced an average loss of 8.1 pounds, with seven-pound losses maintained one year later (see "Company Examples").

It has been suggested that the most promising nutritional intervention for long-term health benefits - ranking just behind smoking and blood pressure control - is control of blood cholesterol in those with elevated levels.[7,22] Several studies reported earlier in this paper document that worksite cholesterol reduction programs can produce good results. For example:

- Employees at Campbell Soup Company with elevated blood cholesterol were advised to follow a prudent diet. About 50 percent were still following the diet one year later.[16]
- A cholesterol education program at L.L. Bean resulted in a 14 percent average cholesterol reduction in participating employees.[56]

Workplace weight loss programs may be the single most studied type of workplace health program.[11] Following are a few examples of evaluation results.

- Using as the unit of analysis cost per kilo of weight lost, Peterson et al. found that self-help groups were only 56 percent as costly as professionally led groups ($4.38 per kilo lost versus $7.88 per kilo lost).[55]
- In a study of female United Storeworkers Union employees, the cost per pound lost was $6.35 using lay leaders and $18.81 with professional leaders; that is, the lay-led groups were 34 percent as costly for equal effect.[11]
- Brownell and colleagues found that worksite weight lost competitions cost $4.87 per kilo lost in the initial competitions, and only $2.56 and $1.88 in subsequent competitions. In a large competition for 2,499 employees and family members at the Lockheed Missile and Space Company in Sunnyvale, CA, program costs were $5.40 per initial participant and 94 cents per pound lost.[65]
- It has been suggested that competitions are the most cost-effective known weight loss approach, and less expensive than commercial or health care programs.[10] However, these studies should be replicated to test whether similar results can be expected in other worksite settings.
- Benefits to psychological health (morale) and work performance (absenteeism, productivity) also have been claimed for worksite weight loss programs[10] and after an employee fitness program which reduced cholesterol.[53]

However, these outcomes should be assessed in future programs, as previous findings are methodologically limited and must be considered preliminary.

In addition, two other major studies of worksite nutrition efforts are underway.

- In 1984, a five-year grant was awarded by the NHLBI to the University of Michigan to examine three different program models that focus on nutrition education, smoking cessation, and high blood pressure control. The study is being conducted in four manufacturing plants in the General Motors Corporation in cooperation with the United Auto Workers.
- In 1985, a five-year grant was awarded to the University of Alabama to examine four different intervention strategies for the modification of recognized risk factors for cardiovascular disease. The study is being conducted with the cooperation of the City of Birmingham and the State of Alabama executives and employees.

Some obstacles to evaluation of nutrition programs include their costs, possible interference with business activity, and the fact that staff with skills for program implementation may lack the skills and/or technology for sound program evaluation. Also, information must be accumulated over a period of at least five to eight years to allow estimation of long-term benefits. Even more important, it is clear that interventions must be sustained for several years for significant health and economic benefits to accrue.

While the cost effectiveness of health promotion efforts has not yet been proven indisputably, many employers <u>believe</u> programs are cost-effective and do not feel the need for evaluations to show this.[60] Employers cite

- provision of a benefit valued by employees,
- employee demand,
- a belief in health enhancement, and
- improved management-worker relations

as compelling reasons for worksite health promotion programs.[50]

COMPANY EXAMPLES--WORKSITE NUTRITION PROGRAMS

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Angelica T. Cantlon, Manager, Health Care Cost Management,
(212)546-7427

Avon Products offers its employees weight control programs, as well as information on cafeteria food, a session on diet and heart disease, and a diet and diabetes program; the company and employees share costs for programs. They regularly offer a weight control program directed by a nurse, which uses behavior change groups, lecture-discussion, and a self-management program.

Campbell Soup Company, Camden, NJ
Michele Robinson, Research Assistant
(609)342-4937

Campbell offers weight loss programs, general nutrition classes, nutritional assessment, and written nutrition brochures. A health care team, with physicians and nutritionists, provides group programs; t-shirts are given as incentives for participating in weight loss programs. Campbell's Turnaround Program and Health and Fitness Center stress positive action in the areas of fitness, nutrition, and lifestyle.

Central States Health & Life Company of Omaha, Omaha, NE
Sally Lorenzen, Wellness Director
(402)397-1111

This insurance company invites all employees, family members, and retirees to participate in various nutrition programs at the worksite, with no charge to the employees. Programs include weight loss contests, nutrition classes, nutrition information on menus, brochures, displays, and lunchtime speakers. Recently, they participated in the local Dairy Council's pilot program, which was a lecture/discussion nutrition course taught by a dietitian. They also held a weight loss competition, which was a self-management program with team and individual goals and written materials. Monetary rewards were given for weight loss and maintenance.

Control Data Corporation, Minneapolis, MN
Kathy Curry, Manager, StayWell Program
(612)853-2681

Control Data's StayWell Program is offered to employees, spouses, and retirees. Weight loss courses and nutritional assessment as part of a health risk profile are ongoing, and take place before and after work and at lunch time. Evaluation data show participant's average weight losses of 8.1 pounds, with seven-pound losses maintained one year after the course.

John Hancock Mutual Life Insurance Company, Boston, MA
Christina Nordstrom Ryan, Coordinator of Administration and Health Education
(617)421-4485

At John Hancock, employees, families, and retirees choose from a wide range of nutrition programs as part of the Positive Lifestyle Management Program and Medical Affairs services. Some major offerings are: American Heart Association's Culinary Hearts Kitchen Course teaching low-fat cooking; and weight control programs of weekly weight monitoring, a 10-week workshop series, and competitions. The first Annual Weight Loss Competition resulted in 187 employees losing a total of 1,248.5 pounds, with winning groups achieving about 25 percent of their weight loss goals.

Johnson & Johnson, New Brunswick, NJ
Judith Fancolini, M.S., R.D., Training Coordinator
(201)530-0078

Johnson & Johnson's Live for Life is a corporation-wide health promotion program that includes many varied nutrition programs: weight control, nutrition, and cooking classes, cafeteria nutritional information, and nutritional assessment. They use an extensive incentive program for participation in programs. Results of a carefully designed evaluation are soon to be published.

Kimberly-Clark Corporation, Neenah, WI
Connie M. Smoczyk, Manager, Health Promotion
(414)721-5559

At Kimberly-Clark, a major nutrition emphasis is the Health and Weight loss program. Several programs are offered, including group and individual dietary counseling, cooking classes, cafeteria nutrition information, brochures, and displays. Extensive evaluation is conducted and the program is continually updated with innovative new elements.

L. L. Bean, Inc., Freeport, ME
Susan Zimmerman, Health Promotion Specialist
(207)865-4761

L. L. Bean provides weight loss programs, general nutrition classes, and a cholesterol reduction program. The cholesterol reduction program includes screening, referral to personal physicians, an education session, and a 15-week L. L. Bean Heart Club lifestyle education program. During 1984-85, average cholesterol reductions of 14 percent were found among participating workers.

Rodale Press, Inc., Emmaus, PA
Anita Hirsch
(215)967-5171

Rodale Press employee nutrition programs include weight control, a cafeteria program, guides for choosing food in restaurants, cooking classes, taste-testing demonstrations, and individual counseling by a dietitian. One unique feature of the Rodale program is its "Lose Weight and Gain" incentive program, in which workers are awarded $5 per pound for weight losses between five and 50 pounds. They are required to pay back $10 per pound gained back, but keep the award if the weight loss is maintained.

Southern New England Telephone, New Haven, CT
Ivana T. Lillios, R.D., Nutrition Coordinator
(203)771-2046

Southern New England Telephone's "Reach Out for Health" health enhancement program includes extensive nutrition offerings of every kind. One unique approach is the use of lunchtime nutrition talks, or "trigger sessions," to stimulate interest in courses such as weight control and the nutrition awareness program. Gift certificates are awarded as incentives for meeting weight loss goals. Evaluation methods include measures of knowledge, attitude, and behavior change, and program satisfaction questionnaires.

Systems Development Corporation, Camarillo, CA
David Eckert, Corporate Fitness Director
(805)987-9343

Employees, family members, and retirees can take part in lunch-time nutrition programs provided by Systems Development Corporation. Some of the offerings include weight control, nutrition classes, cafeteria nutrient information, individual dietary counseling, nutritional assessment, cooking classes, and programs related to diet and heart disease and diabetes.

Tacoma-Pierce County Health Department, Tacoma, WA
Gail Brandt, R.D., M.P.H., Nutritionist
(206)591-6403

The Tacoma-Pierce County Health Department conducts nutritional analysis for all employees, family members, and retirees who are interested. As part of fitness testing and exercise prescriptions, a computerized dietary analysis with advice is completed. The company and employees share the costs for these programs, which take place at the work site during work hours.

Union Carbide Corporation, Danbury, CT
Rosa A. Mo, R.D., Nutrition Consultant
(203)794-4670

Nutrition activities are an important part of Union Carbide's "Health Plus" program. They include nutritional assessment, programs for weight control, heart disease, and diabetes, written and audiovisual materials, individual counseling, and general nutrition classes. Special events include weight loss contests, health exhibits, recipe contests, and National Nutrition Month activities. Union Carbide includes nutrition as part of stress management, smoking cessation, and the fitness program, and also teaches nutrition for professionals in the community.

Wyomissing Corporation, Reading, PA
Charlotte Greenawalt, M.P.H., Project Facilitator
(215)378-4346

Seventy-four Wyomissing Corporation employees took part in a 12-week weight loss competition. They set individual and team goals, received print materials with information for self-monitoring, and were given weekly feedback. They lost a total of 827 pounds, an average of 11.2 pounds each; teams achieved 44 to 86 percent of their goals, and overall weight loss exceeded the goals.

RESOURCES--WORKSITE NUTRITION

American Cancer Society
Education Division
777 Third Avenue
New York, NY 10017
Contact: Alan Erickson
212/599-8200
--or local chapters of the American Cancer Society.
The American Cancer Society's new "Taking Control" cancer prevention/risk reduction program addresses nutrition as both a protective factor and risk factor for cancer. Audiovisual and written materials, which are suited for use in the workplace, are available.

American Dietetic Association
430 North Michigan Avenue
Chicago, IL 60611
312/280-5000

American Heart Association
7320 Greenville Avenue
Dallas, TX 75231
Contact: Becky Lankenau, Director of Nutrition Programs
or Howard Shiflett, Worksite and Community Programs
214/750-5362
--or local American Heart Association chapters.
Nutrition is stressed as playing a major role in one of five heart disease risk factors in the American Heart Association's "Heart at Work" program.

American Red Cross
Nutrition Education Program
National Headquarters
17th and E Streets, N.W.
Washington, D.C. 20006
Contact: Local Red Cross chapters
The Red Cross' "Better Eating for Better Health" program is suitable for workplace use. The program is delivered to businesses directly through local Red Cross chapter Health Service divisions.

March of Dimes
1275 Mamaroneck
White Plains, NY 10605
Contact: Irene McKirgan, Director of Business Health Promotion
914/428-7100
--or local March of Dimes Chapters
March of Dimes' "Good Business is Good Health" program provides health information for pregnant women, including nutrition advice.

National Dairy Council
Nutrition Education Division
6300 North River Road
Rosemont, IL 60018
Contact: Marianne King, Director of Materials Development
312/696-1020
--or local units of the National Dairy Council

National Heart, Lung, and Blood Institute
Office of Prevention, Education, and Control
Division of Workplace Programs and
National Cholesterol Education Program
Building 31, Room 4A21
National Institutes of Health
Bethesda, MD 20205
Contact: Judith LaRosa, R.N., M.N.Ed., Coordinator for Workplace Activities
301/496-1051

Nutrition Information and Resource Center
Benedict House
The Pennsylvania State University
University Park, PA 16802
814/865-6323

Society for Nutrition Education
1736 Franklin Street, Suite 900
Oakland, CA 94612
415/444-7133
Publishes the Journal of Nutrition Education. "Nutrition at the Worksite" supplement, February, 1986.
Contact for journal orders: Society for Nutrition Education (above)
Contact for information on contents: Karen Glanz, Ph.D., M.P.H., Guest Editor, Department of Health Education, 304 Seltzer Hall, Temple University, Philadelphia, PA 19122,
215/787-5109

YMCA of the USA
National Headquarters
101 Wacker Drive
Chicago, IL 60606
Contact: Cliff Lothery, Associate Director for Program Services, Health Enhancement
312/269-0502

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The Washington Business Group on Health was established in 1974 to give business a credible voice in the formulation of federal health policy. Conceived as a membership organization of large corporations, the WBGH began operations with five companies. It has grown steadily since its inception, now representing more than 200 of the nation's largest employers, which are responsible for providing health care to more than 50 million employees, retirees, and dependents. In 1976, the program expanded to become the first national employer organization dedicated to medical care cost management. As an active participant in discussions, hearings, and other aspects of the legislative and regulatory arena, the WBGH's primary purpose is to identify and enunciate the needs and concerns of its members—large employers. The WBGH also serves as a reliable resource base, providing information and expertise on a variety of health care issues. Aside from its involvement in legislative matters, the WBGH publishes a national magazine, *Business and Health*, and hosts three institutes pertinent to the business community: Institute for Worksite Wellness; Institute for Rehabilitation and Disability Management; Institute on Aging, Work, and Health. A broad range of consulting services is also provided to its members, government, and other employers.

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